Propeller Shaft Alignment

AMERICAN MOTORS PROPELLER SHAFT ALIGNMENT

American Motors

DESCRIPTION

Measurement of the front and rear universal joint angle is accomplished by means of an inclinometer (tool J-22910) in the preferred method. An alternate method may be used. With this method a bubble protractor or a protractor and plumb bob is used. Check and adjust propeller shaft universal joint angles with vehicle at usual load and curb height.

CHECKING & ADJUSTING ANGLES

CHECKING

Preferred Method – 1) Raise vehicle on a hoist that will support weight of rear of vehicle on axle tubes or rear springs.

2) On Matador models, measure distance between top of each axle tube and side sill. Take measurement adjacent to rubber bumper on each side of vehicle. Add the two measurements then divide sum by two. This produces an average distance between axle tubes and side sills.

3) On all models, remove universal joint bearing cap retainer. Install a suitable inclinometer (J-22910) on universal joint bearing cap. Align frame parallel to propeller shaft centerline. Rotate shaft as necessary to zero frame bubble. Rotate pendulum thumbscrew to zero pendulum bubble, then read scale at base of frame. Reading is indicated by vertical hairline mark on pendulum.

4) Perform this procedure on the front propeller shaft yoke bearing cap and transmission yoke bearing cap. Record each measurement. The difference between measurements is the front universal joint angle.

5) For rear universal joint angle, place inclinometer at rear propeller shaft yoke bearing cap and then at rear axle drive pinion yoke bearing cap. The difference between these two measurements is the rear universal joint angle.

6) Check measurements obtained against Universal Joint Angle chart for Matador models or against the Specifications table for all other models. Adjust as necessary (*see Adjustment in this article*).

Alternate Method – 1) Raise vehicle on a hoist that will support weight of rear of vehicle on axle tubes or rear springs.

2) On Matador models, measure distance between top of each axle tube and side sill. Take measurement adjacent to rubber bumper on each side of vehicle. Add the two measurements then divide sum by two. This produces an average distance between axle tubes and side sills.

3) On all models place bubble protractor or a protractor with plumb bob on rear axle universal joint bearing cap then on propeller shaft rear universal joint bearing cap. Record readings. The difference in readings is the rear universal joint angle.

4) Repeat procedure at front universal joint and slip yoke joint. Difference in readings obtained is the front universal joint angle. Check obtained measurements against specifications table or chart.

NOTE – *Front or rear universal joint angles must not be negative. If angles measured are negative they must be adjusted to specifications.*

Universal Joint Angle Specifications

Application	Measurement
Front U-Joint Angle	
All Models	1° ±½°
Rear U-Joint Angle	
Matador	①
Pacer, Gremlin, Hornet	2½° ±½°

① – See Universal Joint Angle Chart for Matador models.

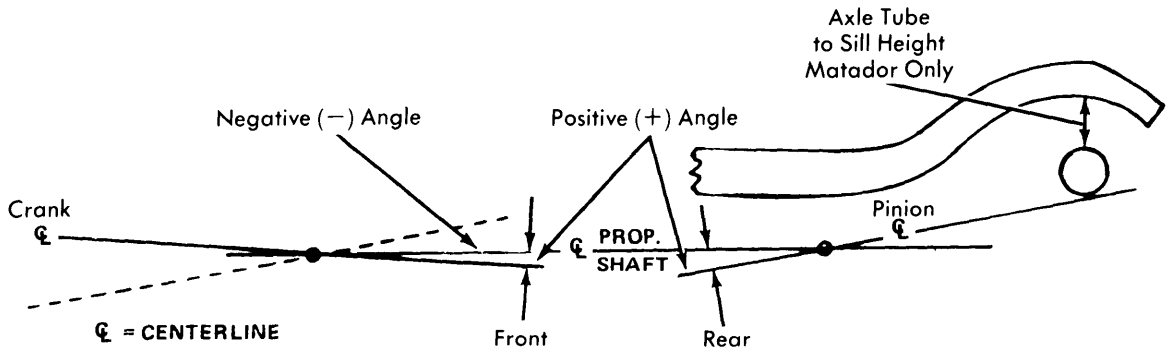

Fig. 1 Front and Rear Universal Joint Angles

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AMERICAN MOTORS PROPELLER SHAFT ALIGNMENT (Cont.)

ADJUSTMENT

NOTE – *If front universal joint angle is negative, front angle should be adjusted first, then check and adjust rear angle as required. Recheck front angle after adjustment. If front angle is positive, adjust rear angle first and then check and adjust front angle as required.*

1) To adjust front universal joint angle, install shims between engine rear crossmember and frame side sill. Adjusting shims may be made by altering the rear crossmember shims used on Matador models.

NOTE – *If it is necessary to add shims to correct front angle, manual transmission linkage must be adjusted after installation of shims.*

2) To adjust rear universal joint angle on Matador models, install shims between rear suspension crossmember and mounting brackets side sills.

3) To adjust rear universal joint angle on Pacer, Gremlin and Hornet models, install wedge shaped shims between rear springs and rear axle tube spring pads.

4) To increase angle, install the shim so the tapered end faces the rear of car. To decrease angle, install shim so tapered end faces front of car. Adding shims raises the rear axle pinion and decreases the rear universal joint positive angle. Removing shims lowers axle pinion and increases the rear universal joint positive angle.

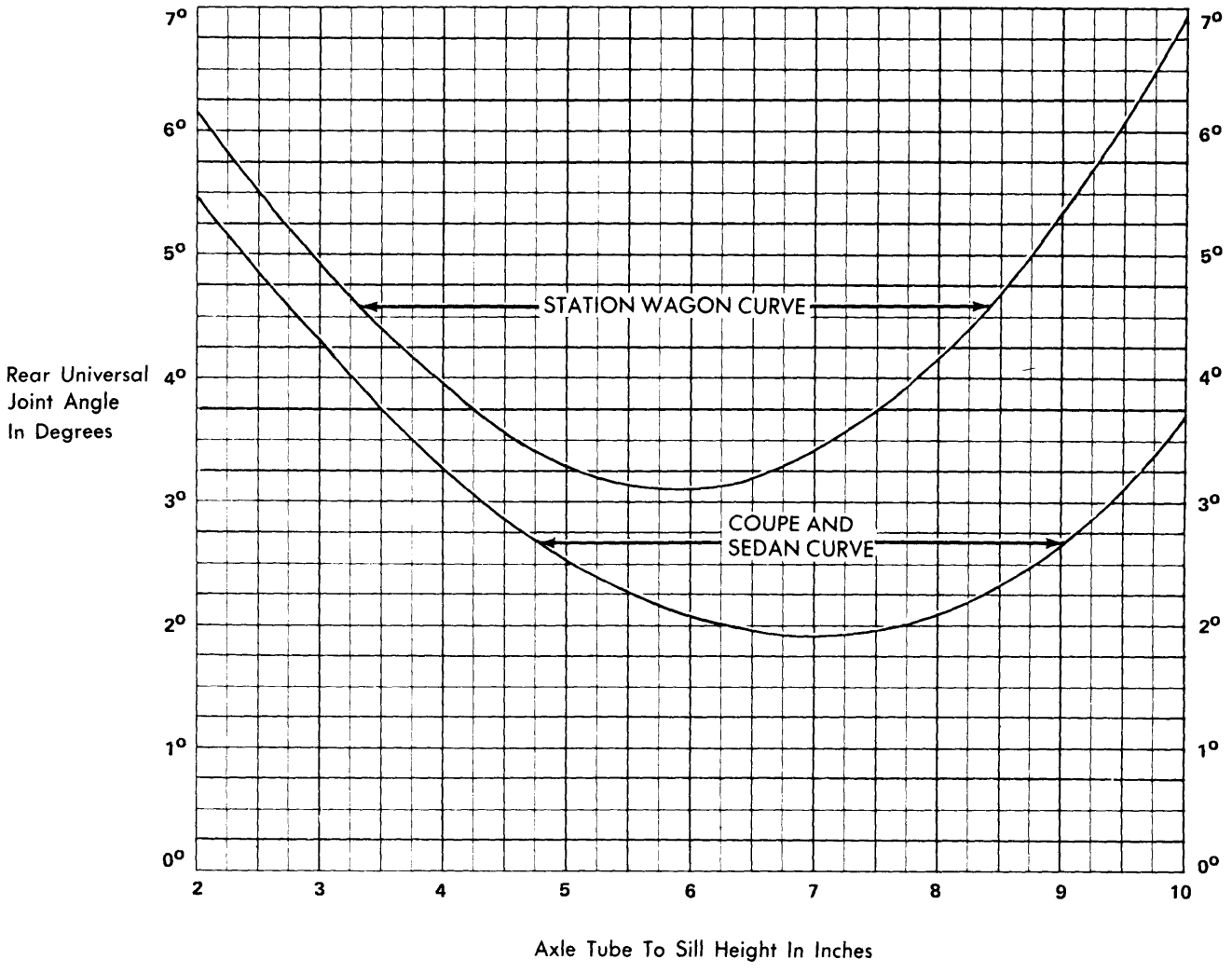

Fig. 2 Matador Rear Universal Joint Angle Chart

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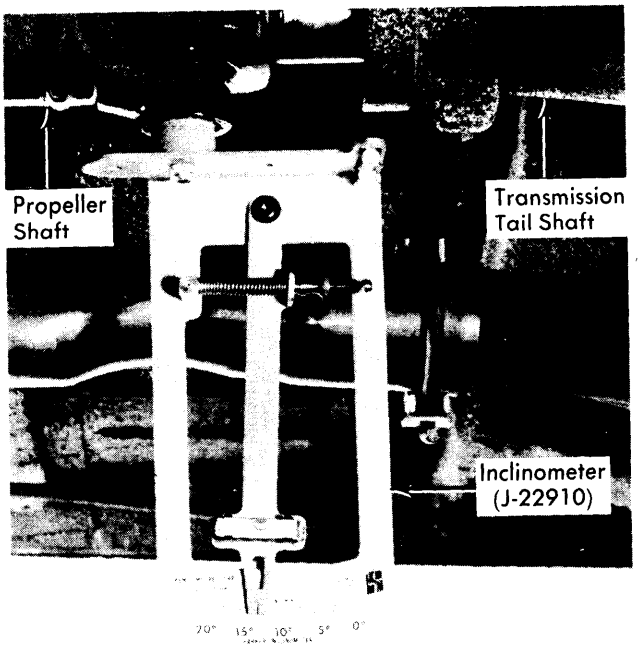

Fig. 3 Measuring Universal Joint Angle — Typical (Preferred Method)

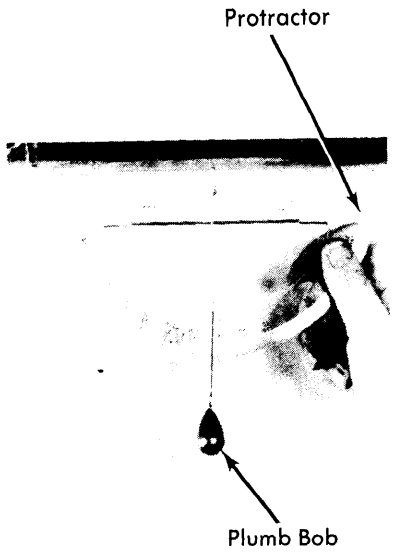

Fig. 4 Measuring Propeller Shaft Angle (Alternate Method)

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